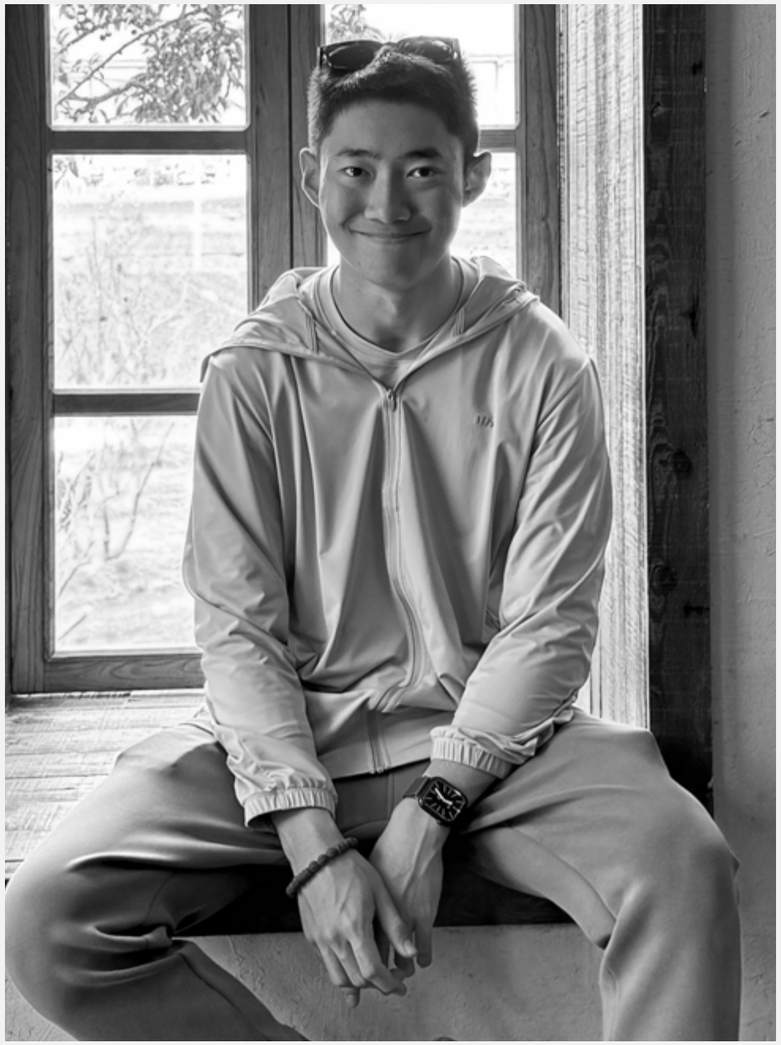
Industrial Design Portfolio

Bingxuan (Bensen) Liu | 2026

About Me

Hello, I’m **Bensen Liu**

I believe great design happens where human empathy meets hands-on making. As a product designer, I dive deep into user cultures to uncover real-world frictions, then bridge the gap between initial sketch and physical reality through digital CAD and workshop prototyping.



Education

ArtCenter College of Design — Pasadena, CA
B.S. Product Design — September 2025 – Present

Experience

Independent 3D Print Services
2nd Place | OC Fair Imaginology

Skills

Software: Blender, Keyshot, Lightroom, Fonts, Illustrator, InDesign, Photoshop, Rhino, Shapr3D, SolidWorks
Personal: Branding, Sketching, CMF, Rapid Prototyping, Model Making, Product Research, 3D Printing

Contents

BANG & OLUFSEN

BEOSOUND PRISM

Pure Geometry, Immersive sound: Active loudspeaker for Bang & Olufsen.

Model Making Project

14 Weeks

2026

Skills: Branding, CAD Modeling, Machining, Electroacoustics Engineering

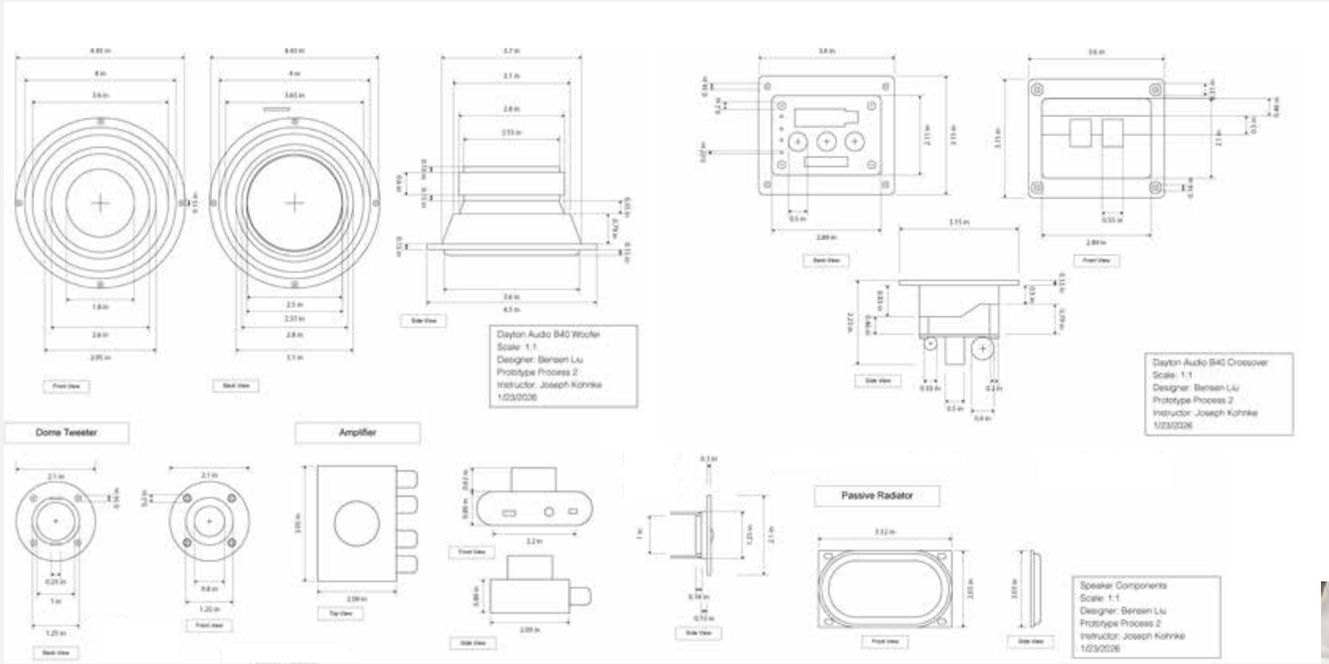
Inspirations & Environment


Bang & Olufsen Beovox Speakers


Acoustic Lens

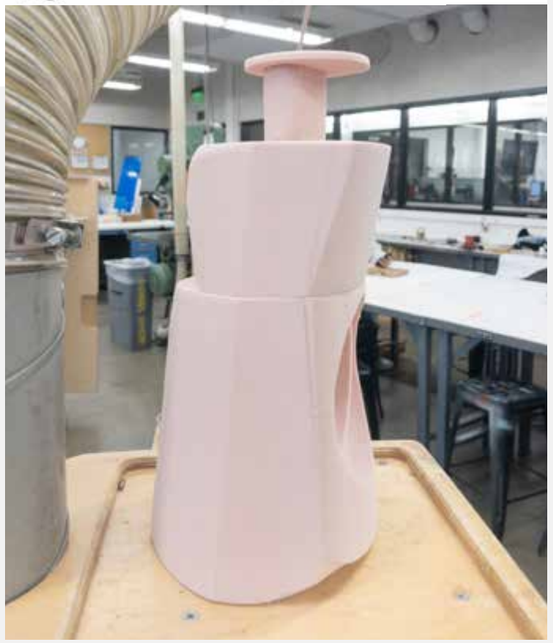
Inspired by Beovox loudspeaker's faceted silhouette and their signature acoustic lens design (a tweeter waveguide), I set out to create a sculptural, high-performance desktop centerpiece. The speaker is to fit in a modern, clean studio environment for creative professionals and design enthusiasts to enjoy.

Rapid Prototyping

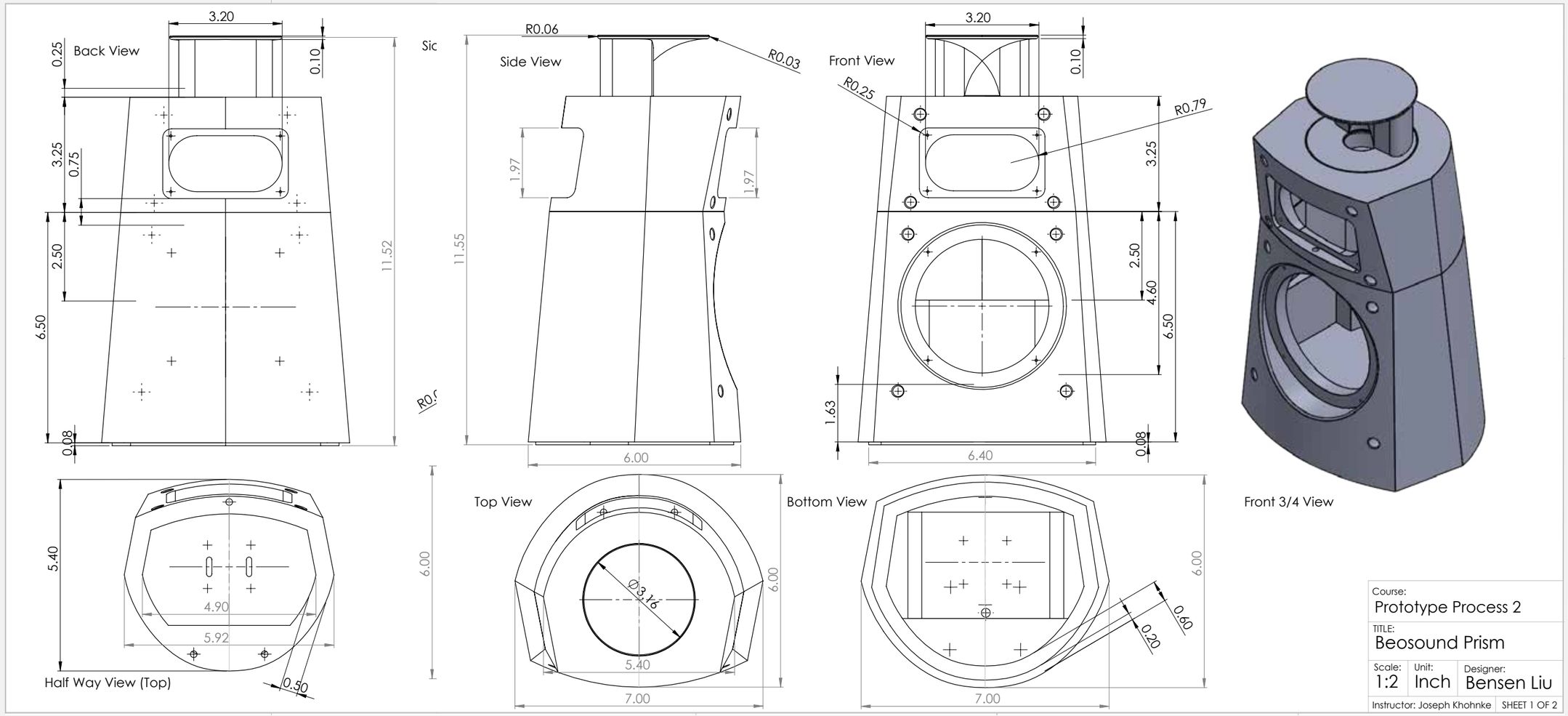


The design process moved from ideation sketches to rapid cardboard modeling to establish the speaker's 3D silhouette.

After mapping the internal components, I fabricated a 10lb foam mockup to ensure the enclosure was acoustically optimized for the drivers, crossover, amplifier, and dampening materials.



Designing the Enclosure



The acoustic lens sits atop the tweeter, redistributing high frequencies across a wide, immersive sound-stage. Passive radiators housed on both sides of the speaker help amplify bass within a sealed enclosure.

Model Making










The enclosure was machined from 20lb foam into two sealed cavities using internal screws and a custom gasket. I SLA-printed and airbrushed the acoustic lens, applied a hand-polished automotive finish to the exterior, and finalized the build by soldering the internal electronics and base-mounted amplifier.

Model Shots


FCC ID: VSUDJ3VA
CAN ICES-3(B)/NMD-3(B)
IC: 9110E-BEOSOUNDPRISM
1700 Lida St, Pasadena, CA 91103
Manufacturer: Bang & Olufsen a/s
Designed by Bensen in the United States
Made in California

A Timeless Piece of Sonic Art.

TRAEGER RANGER TOOL SET

Epic grilling on the move — professional-grade tools built for the modern roamer.

Academic Project

14 Weeks

2026

Skills: Branding, Research, Prototyping, Model Making

Mission Statement

To Design a High-Performance, Travel Ready Grilling Tool Set for Roamers

TARGET USER: THE ROAMER

- Age: 27-37
- A person who travels from place to place to find fresh pasture
- Coastal weekend adventures, overland expeditions in a built-out truck, and tailgates parties in urban parks.

EPIC GRILLING: ON THE MOVE

Traeger is a premium lifestyle brand and the pioneer of wood pellet grilling.

While the Brand's Ranger portable pellet grill was built for the road, standard grilling tools weren't. To solve the hassle of packing bulky gear, I designed a professional, travel-ready tool kit.

Competitor Analysis

	Cuisinart 3-Piece Professional Grill Tool Set MSRP: $19.99	Weber Precision 3-Piece Grilling Tool Set MSRP: $39.99	OXO Good Grips 3-Piece Grilling Tool Set MSRP: $39.99	Schmidt Bros Bonded Teak 4-Piece Grill Set MSRP: $99.99
				
Pros	- Sturdy, thick stainless steel - Very good value pricing relative to build quality	- Excellent build quality and weight - Easy to flip big items and reach across wide grills	- Double-bend turner for better leverage - Angled scalloped tongs for a sure grip on food	- Heavy-gauge stainless construction - Premium materials and aesthetics
Cons	- Tongs don't grip well - Edges of spatula/fork feel a little rough and could use better finishing	- Difficult to store in standard kitchen drawers - Tong locking mechanism feels weird	- Does not include fork or brush - May be difficult to keep tools grouped together	- Handle is simply glued with epoxy and can break off - Teak handles and wood box require more careful maintenance

MACRO TRENDS: KISS PHILOSOPHY

- "Keep it simple, stupid." Consumers favor simple, well-curated sets instead of bulky kits.

MATERIALS, COLORS, FORMS, ERGONOMICS

- Material trend: stainless steel for durability and heat-resistant silicone / nylon on handles
- Ergonomics: angled heads and textured, non-slip handle.
- Form and color: black or charcoal handles with stainless heads / warm woods dominate the market.

User Interview / Painpoint


Weber Employee


Seasoned Griller


Military Cook


Grill Beginner

After my extensive interview and hands-on experiences, I found the most important factors for a portable grilling tool set are: easy to hold, low maintenance, and travel-friendly size.

Convenience features like a bottle opener is a plus.

Ergonomics

Weight

Fatigue

Grip

Maintenance

No Nooks and Crannies

Cleaning with little water

Durable

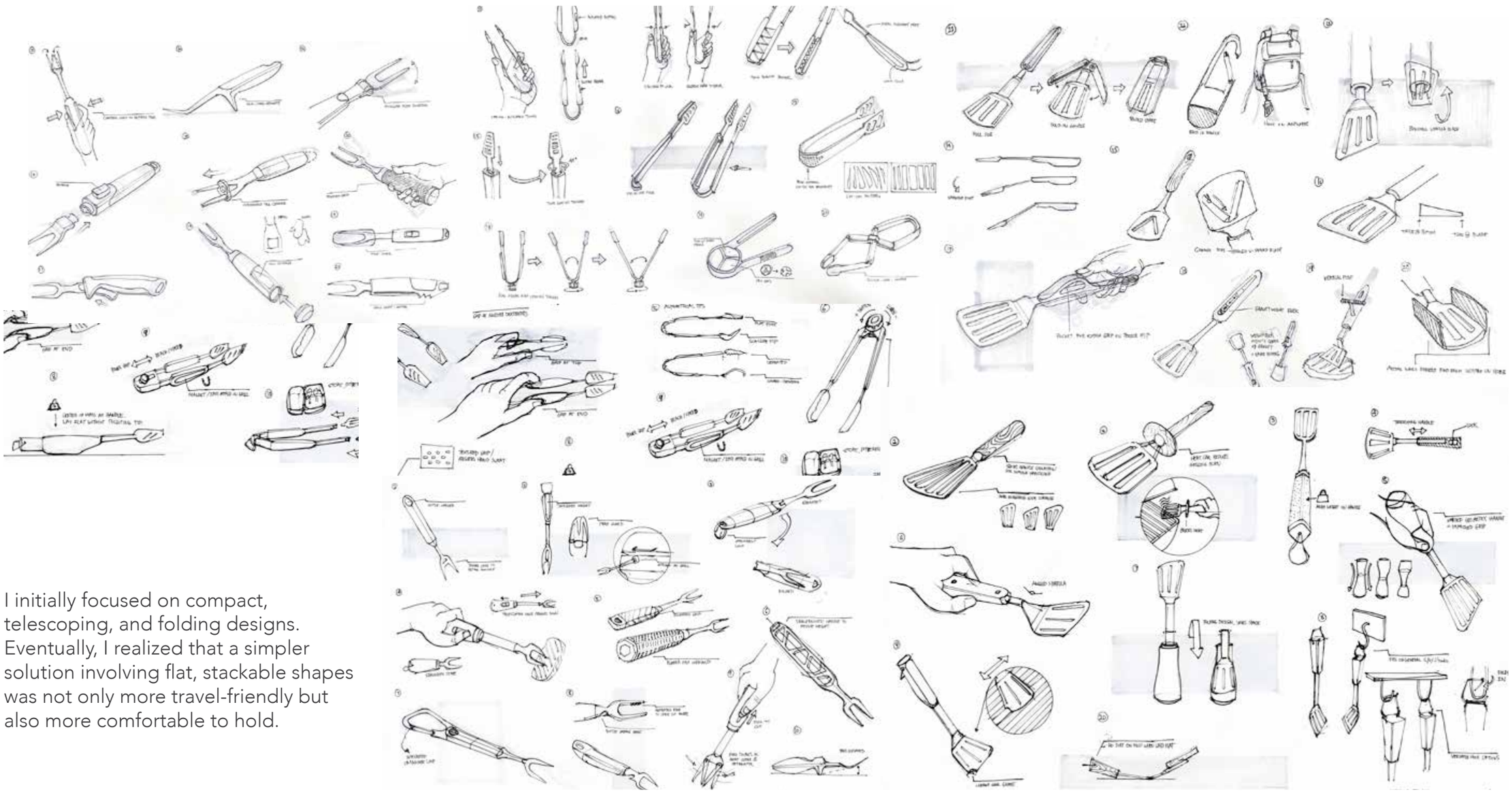
Storage

Compact Size

Stackable

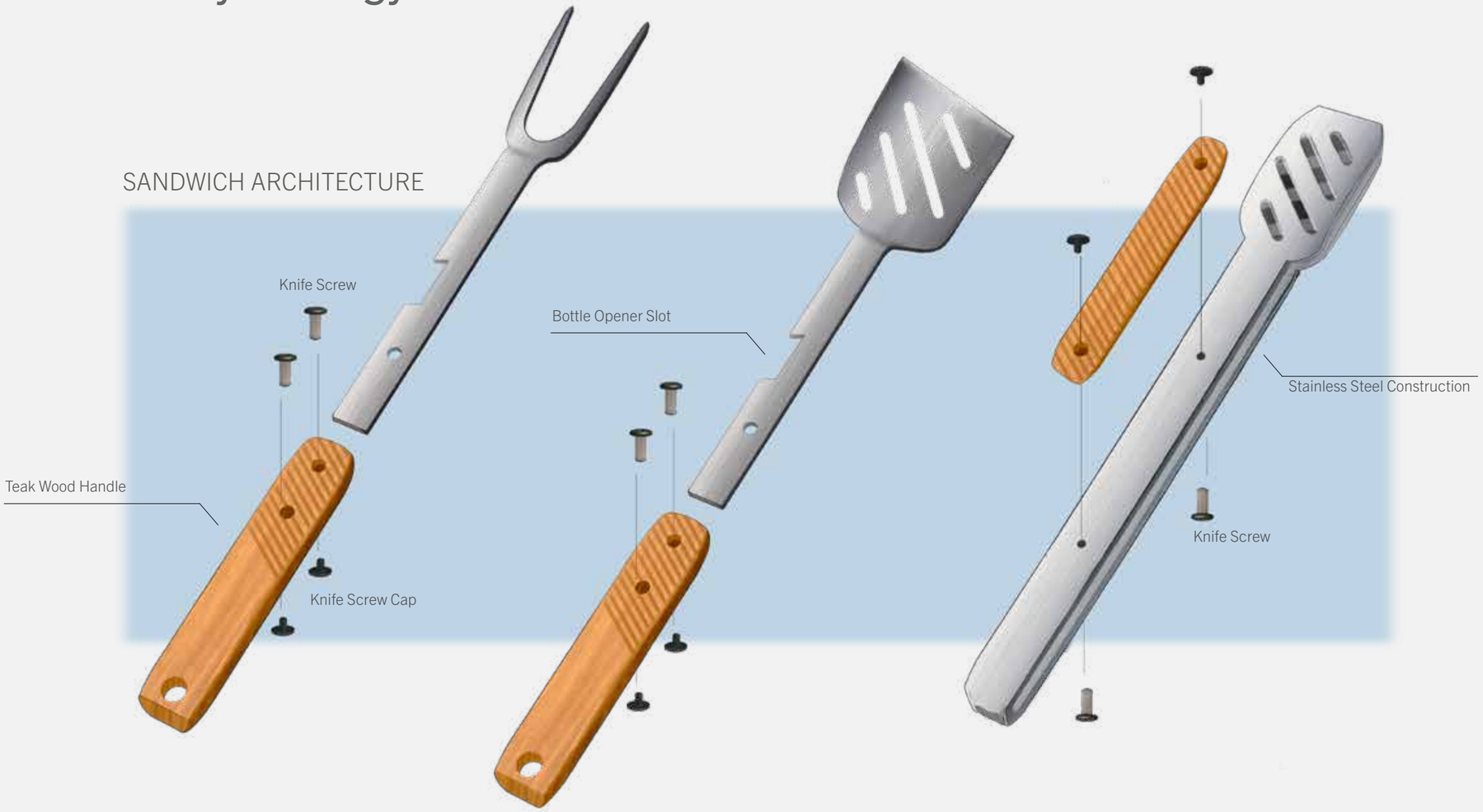
Ease of Hanging

Form & Concept Exploration

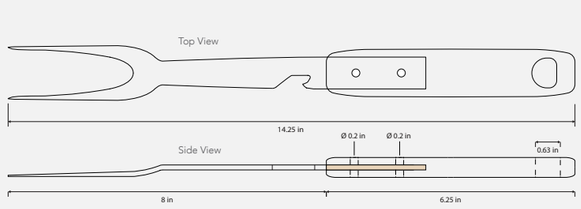


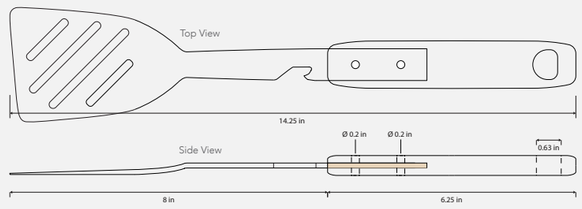
I initially focused on compact, telescoping, and folding designs. Eventually, I realized that a simpler solution involving flat, stackable shapes was not only more travel-friendly but also more comfortable to hold.

Disassembly Strategy



The spatula and fork are secured using a sandwiched design, and the tool head is attached to the handle using knife screws. I validated the tolerances in a final test fit.





THIN DESIGN

Spatula and fork are 0.5” thick, for ultimate flat-packing to take on-the-go.

ERGONOMIC

Edge fillets and grip tile provides comfortable and tight grip.

TRAVEL PACKING

Tools are held together by the contour of the tong, and can be securely held in a bag.

Butterfly Diagram

Built upon a sandwich architecture, users can maintain and repair individual parts over time.

Materials are sourced responsibly, and waste parts will be recycled to extend material lifespan.

Manufacturing

Distribution

Send In for Replacement (5 years warranty)

Replacement Upon Purchase After Warranty

Maintain

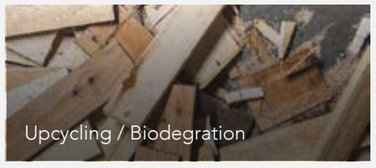
Product Provider

Ship Replacement Component if broken (5 years warranty)

Replacement Upon Purchase After Warranty

Maintain

Consumer



End of Life

End of Life

Minimize Waste and Improve User Experience


Built for movement,
gathering, and life outdoors.


The Journey Continues...

HYDRAGRIP

Hydration solution for those with arthritis.

Independent Project

17 Weeks

2024-25

Skills: User Research, Visual Communication, Solidworks & Keyshot

To design a water bottle for people struggling with **Arthritis**.

78 Million US. Adults Have Arthritis

+45% projected increase by 2040.

Target Users

Rheumatoid Arthritis: Weak hand grip & motion.
Osteoarthritis: Pain, swelling, & limited dexterity.
Psoriatic Arthritis: Finger & hand swelling.

Market Opportunity

MOST HYDRATION PRODUCTS IGNORE USERS WITH ARTHRITIS

Brands make water bottles appeal to more people as possible. However, opportunity to design a water bottle for those with special needs is neglected.

Arthritis affects peoples' ability to drink. The market is also growing rapidly. In order to hit my target demography, my water bottle will have high quality material and construction.

Designed Around Extreme Arthritis Edge Cases Beneficial For All

Grip

Minimal finger support.
Textured, non-slip surfaces for easy and steady holding.

Palm grip reduces the risk of tipping over.

Accessibility

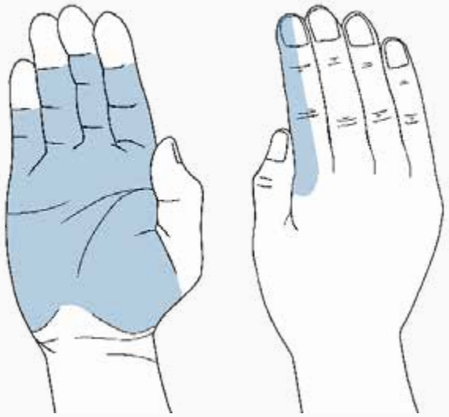
Accommodating users with pain or stiffness in another hand.

Straw spout for up-right drinking needs and easy refill.

Stability

Reduction of hand fatigue.
Beneficial for users with swelling or bent fingers.

Leak-proof to prevent accidental spills.

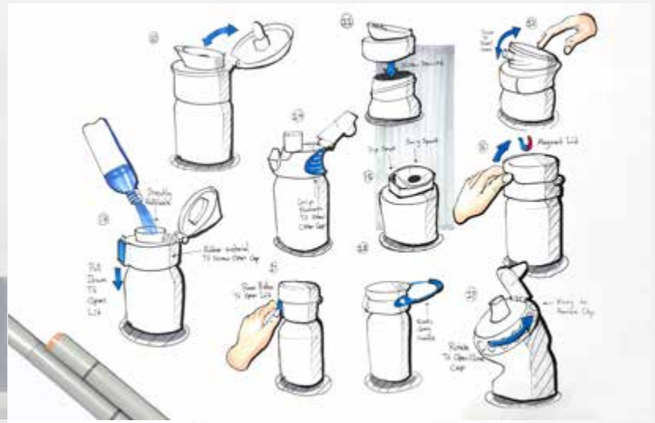


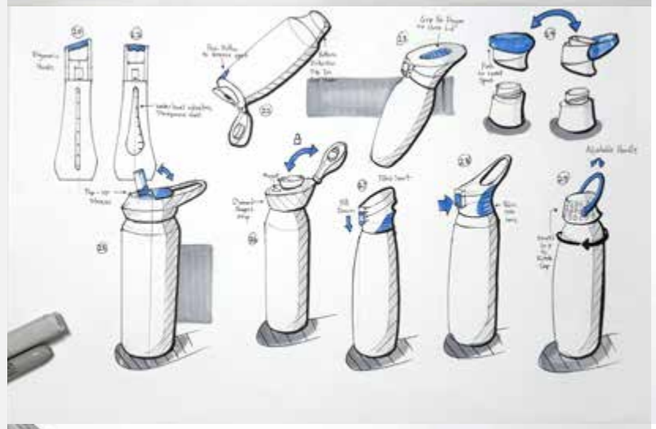
Usable Hand Grip Area

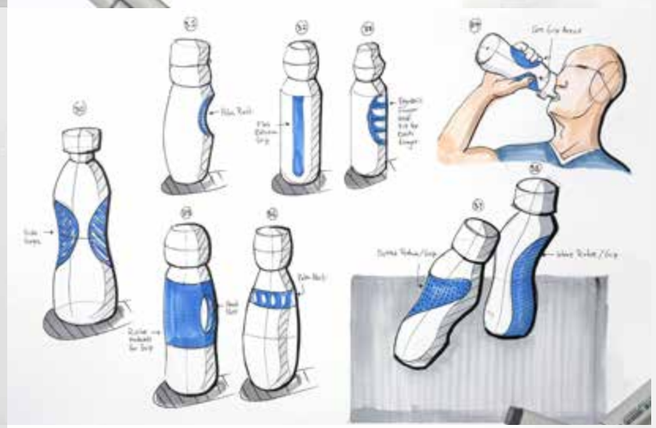
Facetime with Kaisar Permenente D.O. Rheumatologist

Andrew Nguyen

Ideations





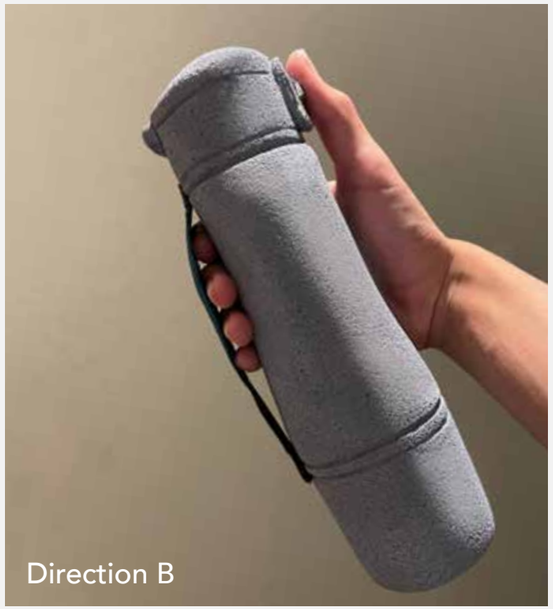


To design an accessible bottle for users with arthritis, I focused on reducing joint strain and maximizing hand support.

Through iterative sketching, I explored low-force mechanisms and ergonomic forms that accommodate restricted fine motor control.

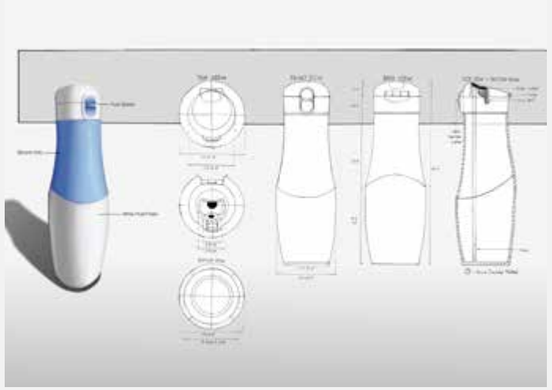
Prototype Direction

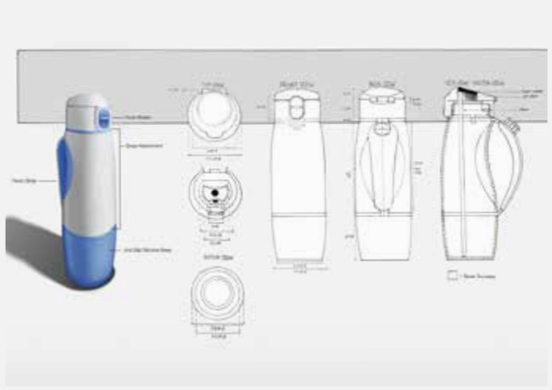
Rheumatologist Andrew Nguyen Prefers Direction B

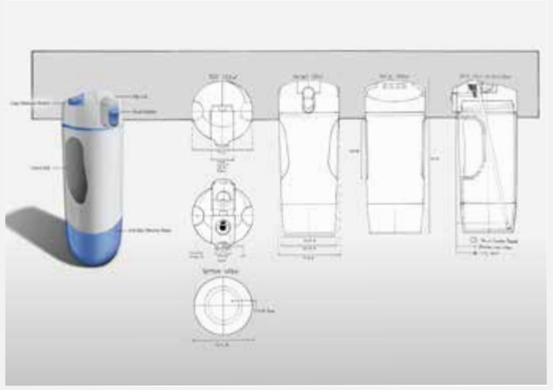


Direction B was selected for its superior accessibility.

The tension-adjustable cushioned strap stabilizes the palm and provides soothing joint compression, while the slim profile and low-force push button maximize ease of use.







Hydragrip

Hydration solution for those with arthritis

Adjustable Handstrap

Rotate spin knob to adjust waterproof handstrap compression for a better grip and pain relief.

Lock Button

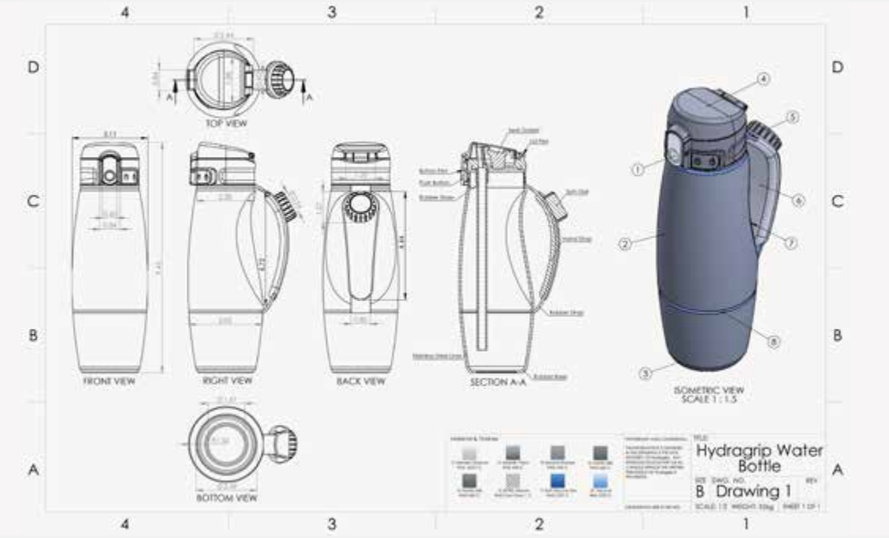
Easily flip the lock switch to lock the lid. For users with limited dexterity and those prone to spills.

Hybrid Spout

The hybrid sip and swig spout accomodates for different drinking preferences and fine motor abilities.

Secure Grip

The Hydragrip bottle offers premium, waterproof silicone rubber grip and base for stability and hand support.



Storyboard

Hydration without pain during daily routines.


Effortless grip that makes daily hydration easy.

PostureEase

Every-day wearable neck brace for text neck syndrome.

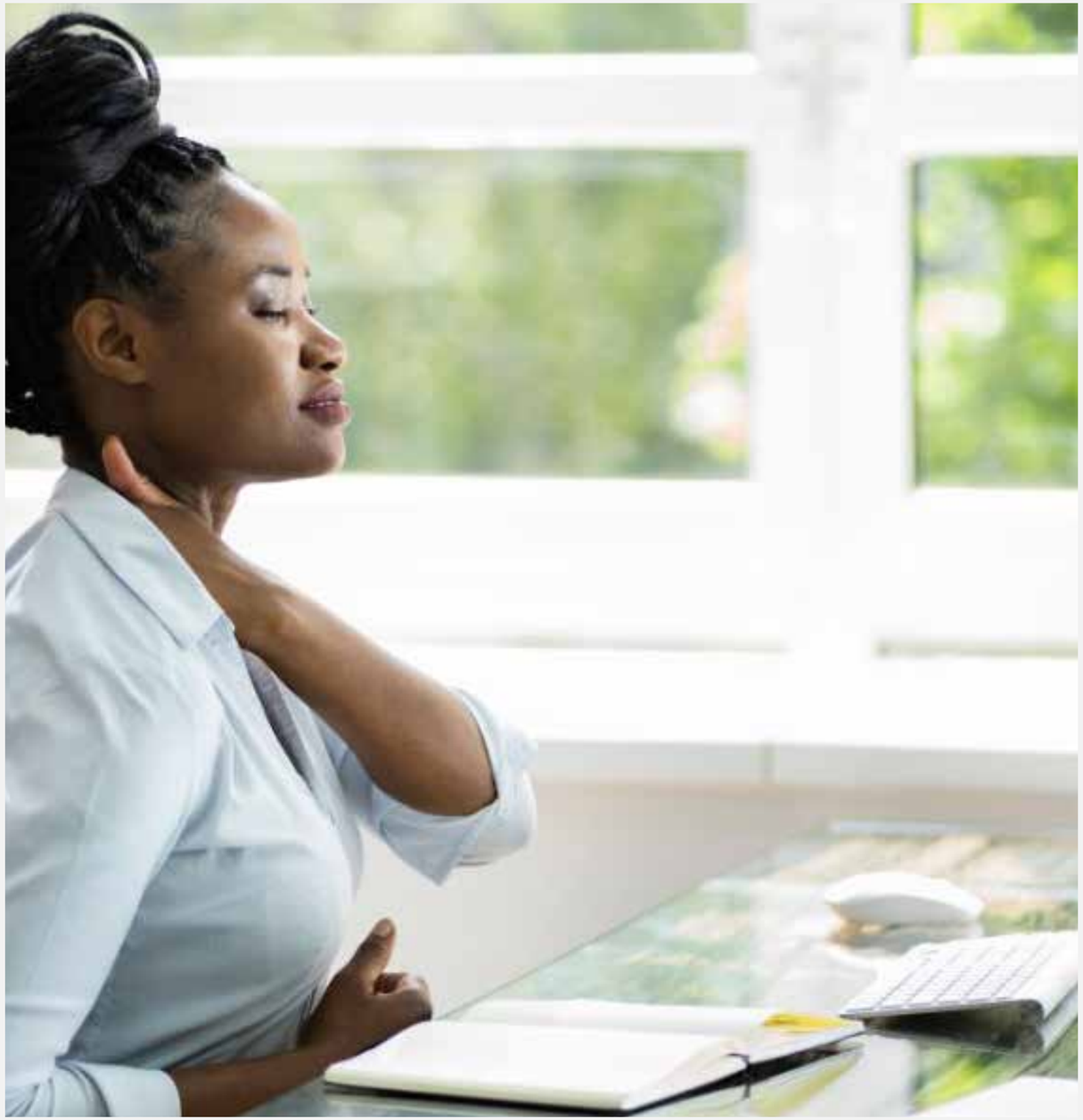
Independent Project

8 Weeks

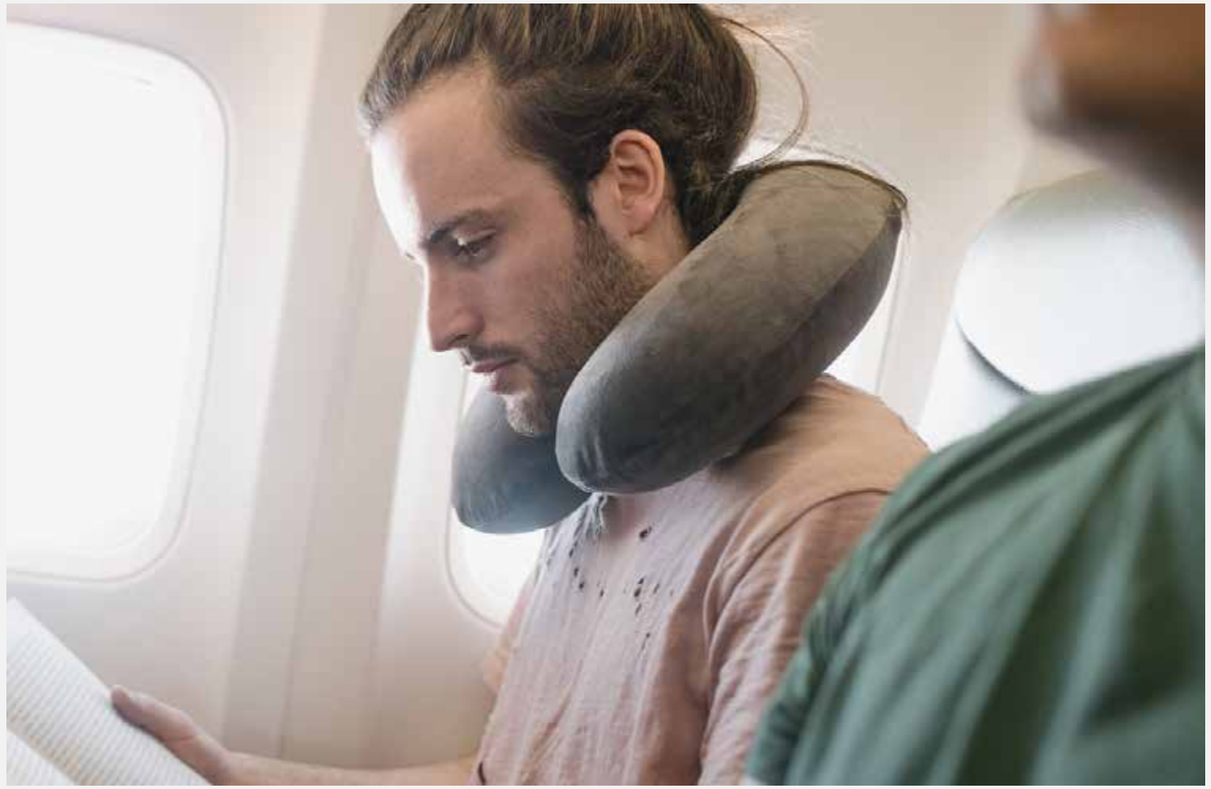
2025

Skills: Medical Research, Rapid Prototyping, Solidworks & Keyshot

Target Audience



PostureEase is a lifestyle cervical neck brace designed to help prevent spinal pressure and discomfort caused by **Text Neck Syndrome.**



Design Philosophy

Fashionable

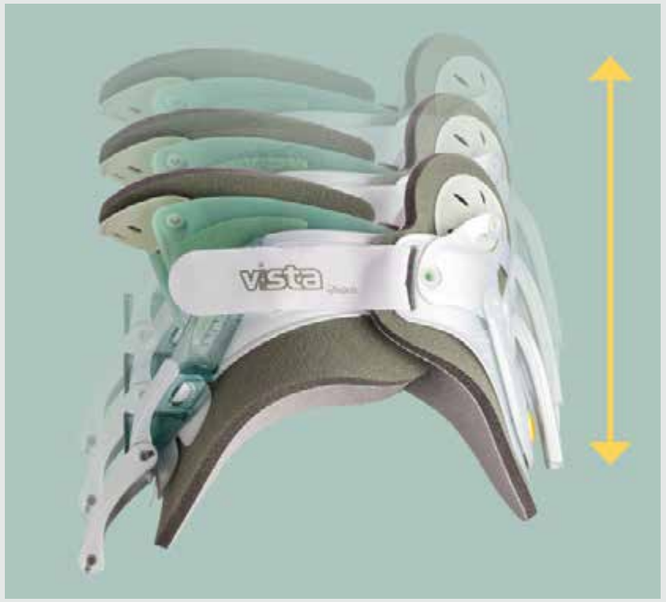
PostureEase can be worn anywear: home, office, riding transport, and more. It should use light weight and breathable materials, and be compact for carrying.

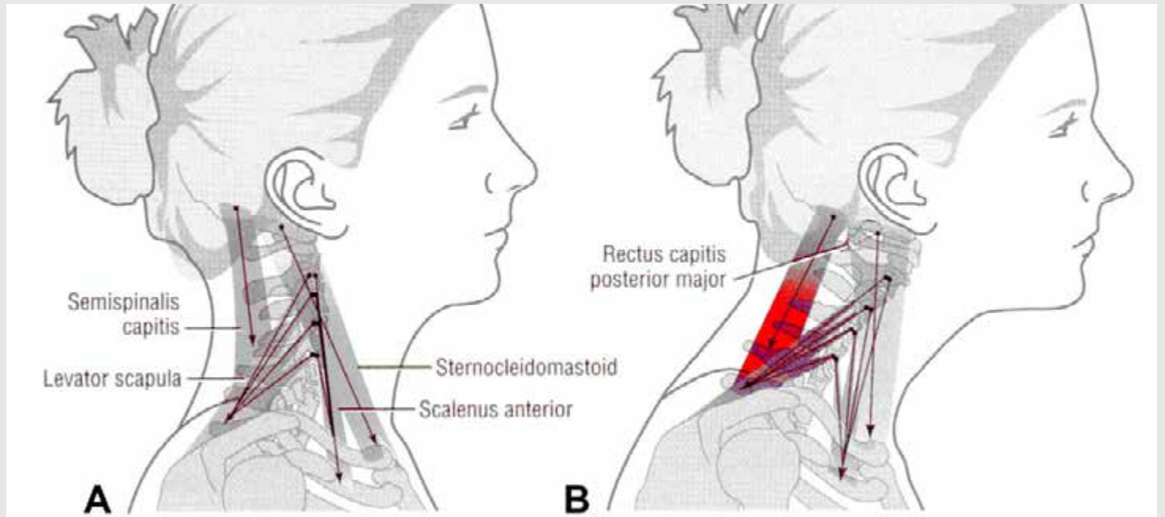
Ergonomic

Components should not obstruct throat and breathing. Adjustments should limit forward-leaning posture and relieve neck strain with scientifically-backed pressure points.

Sustainable

Components built-out of bio-based materials are renewable and controlled bio-degradable. Adjustable compartments fits more people and reduces sizing-associated waste.





Normal Spine

Spine w/ Issues

Stretch the Spine

- Depressurize and relief neck strain.

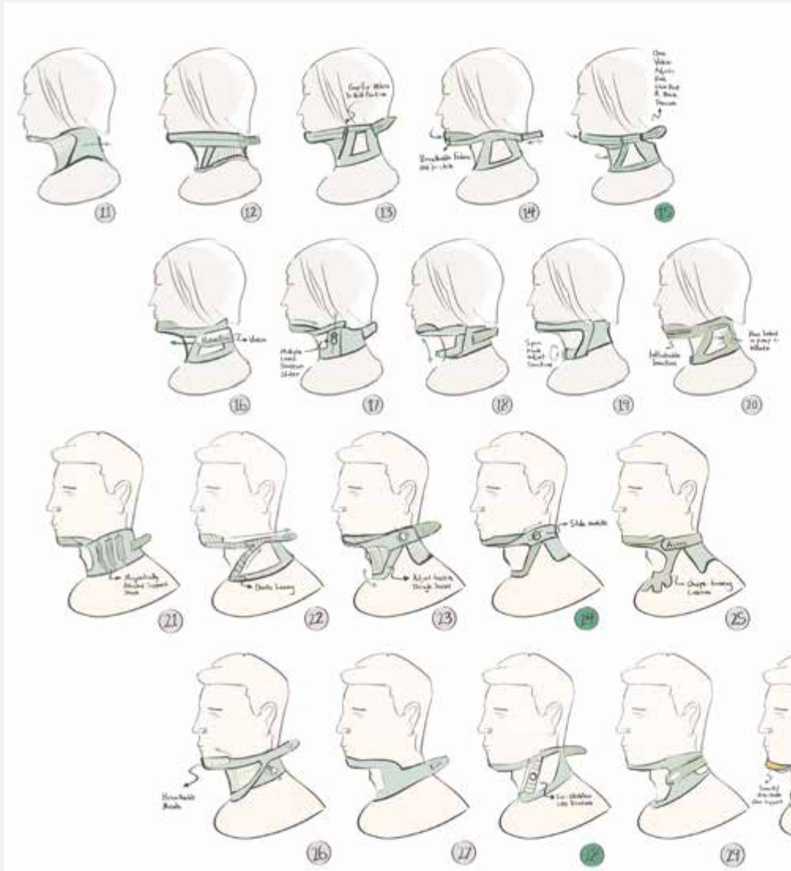
Limit Forward Head Posture

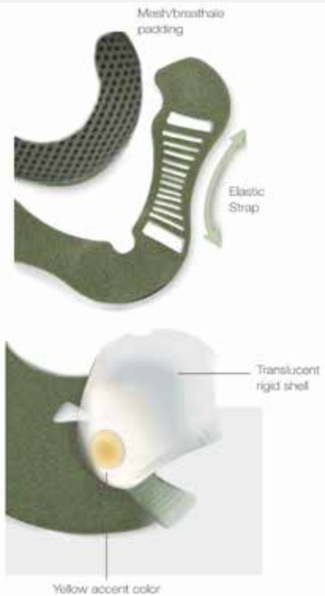
- By restricting the chin from leaning forward.

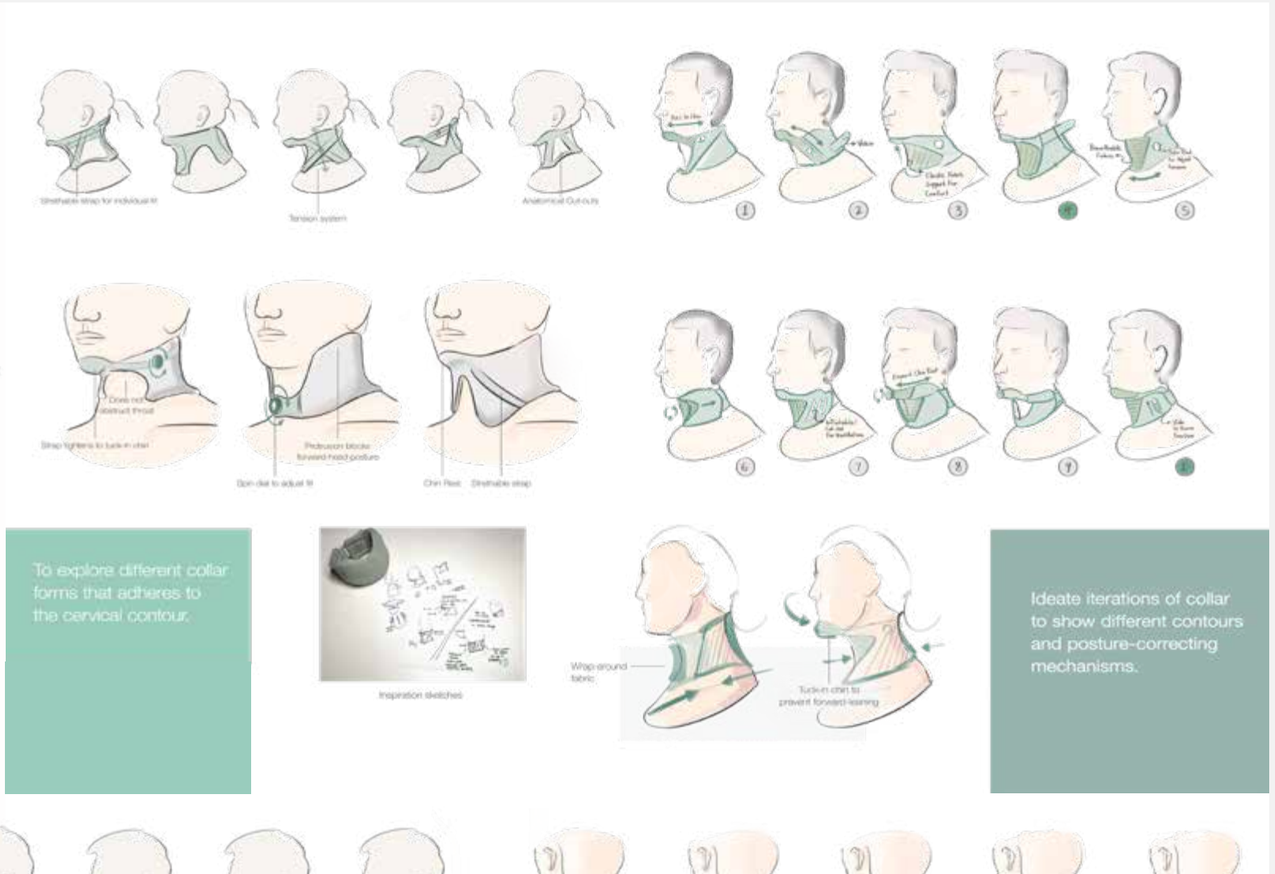
By targeting two issues, PostureEase can deliver the most impact for good posture

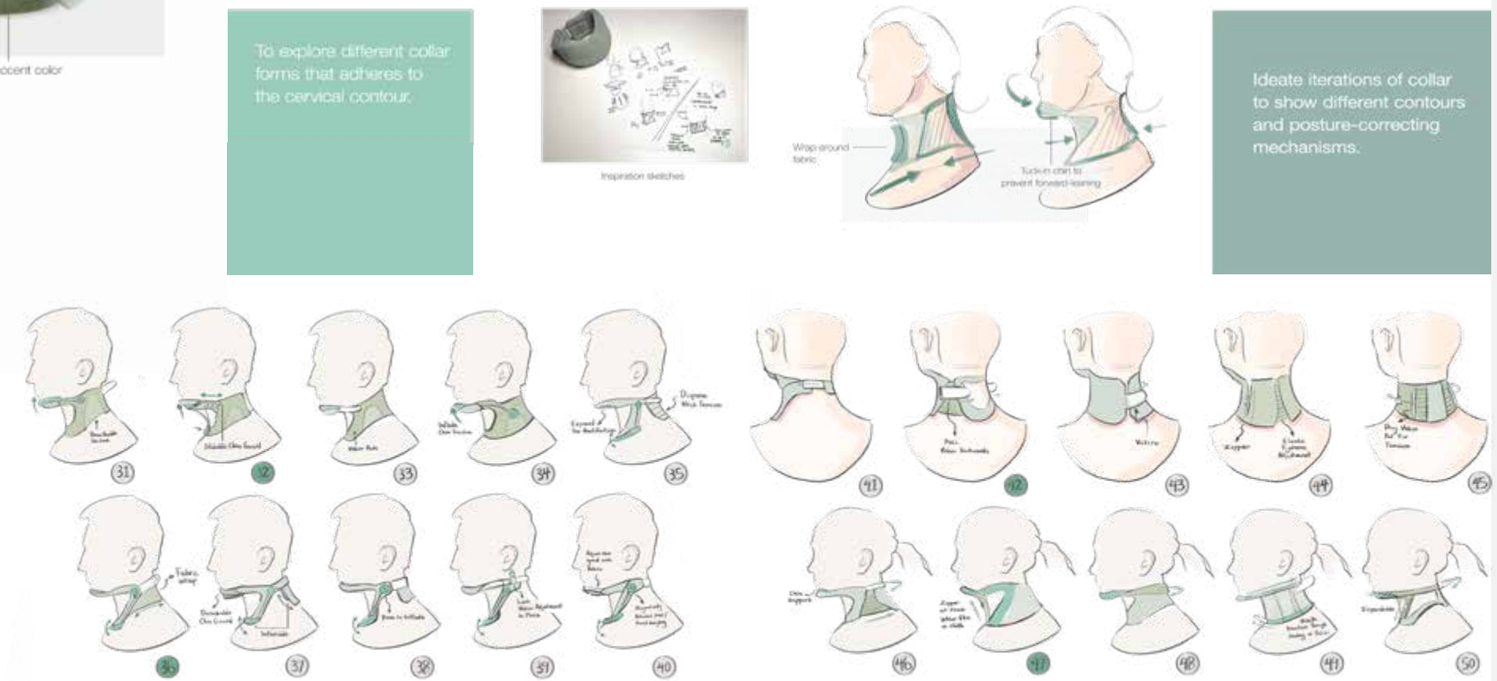
*Based on interview with Lena Kim, KMD, L.Ac. Specialized in cervical and pain treatments.

Ideation









I focused on developing a slim, ergonomically functional collar

By exploring the integration of breathable mesh padding with a translucent rigid shell, the goal was to achieve a high-performance, unobtrusive wearable.

Design Direction

Direction A

Wide Chin-Rest

Shape conforms to chin contour.
Cut-outs improve ventilation.

Adjustable-Height

Slide through different gears.
Tailored fit.

Direction B

Pressure Pump

Tailored to different neck heights.
Expand & relieve spinal pressure.

Trapezius - Support

Trapezius rest.
For back to rest on.

Direction C

Slide Adjustments

Tailored to different neck heights.
Expand & relieve spinal pressure.

Back - Support

Back plate + Trapezius rest.
Provide stability.

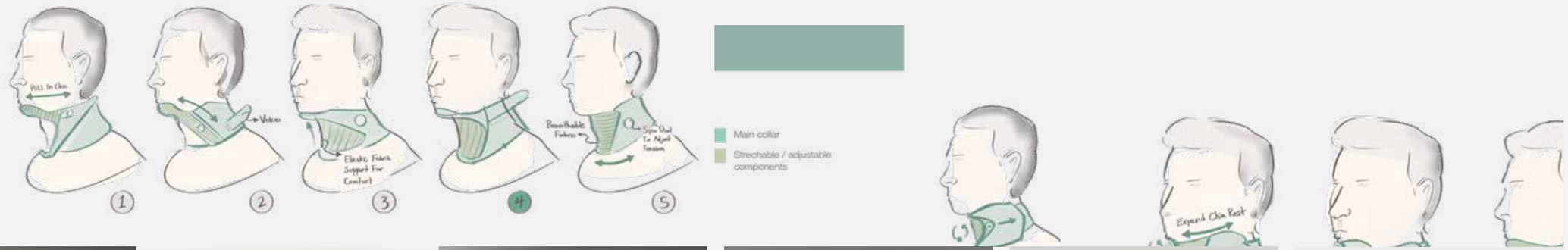
Physical therapist Dr. Lena Kim preffered Direction C.

Her endorsement centered on three core criteria: optimized postural alignment, flexible anatomical scaling for varying neck sizes, and a highly compact, comfortable form factor.

PREFERRED DIRECTION: C

Prototyping

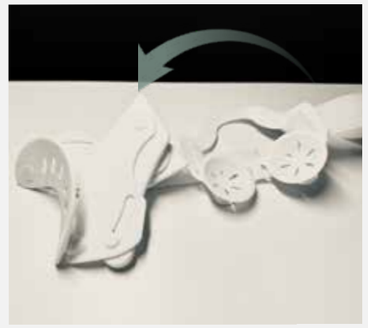
Ideate iterations of collar to show different contours and posture-correcting mechanisms.



All components were modeled in SolidWorks and iteratively 3D printed to rigorously test mechanical viability.

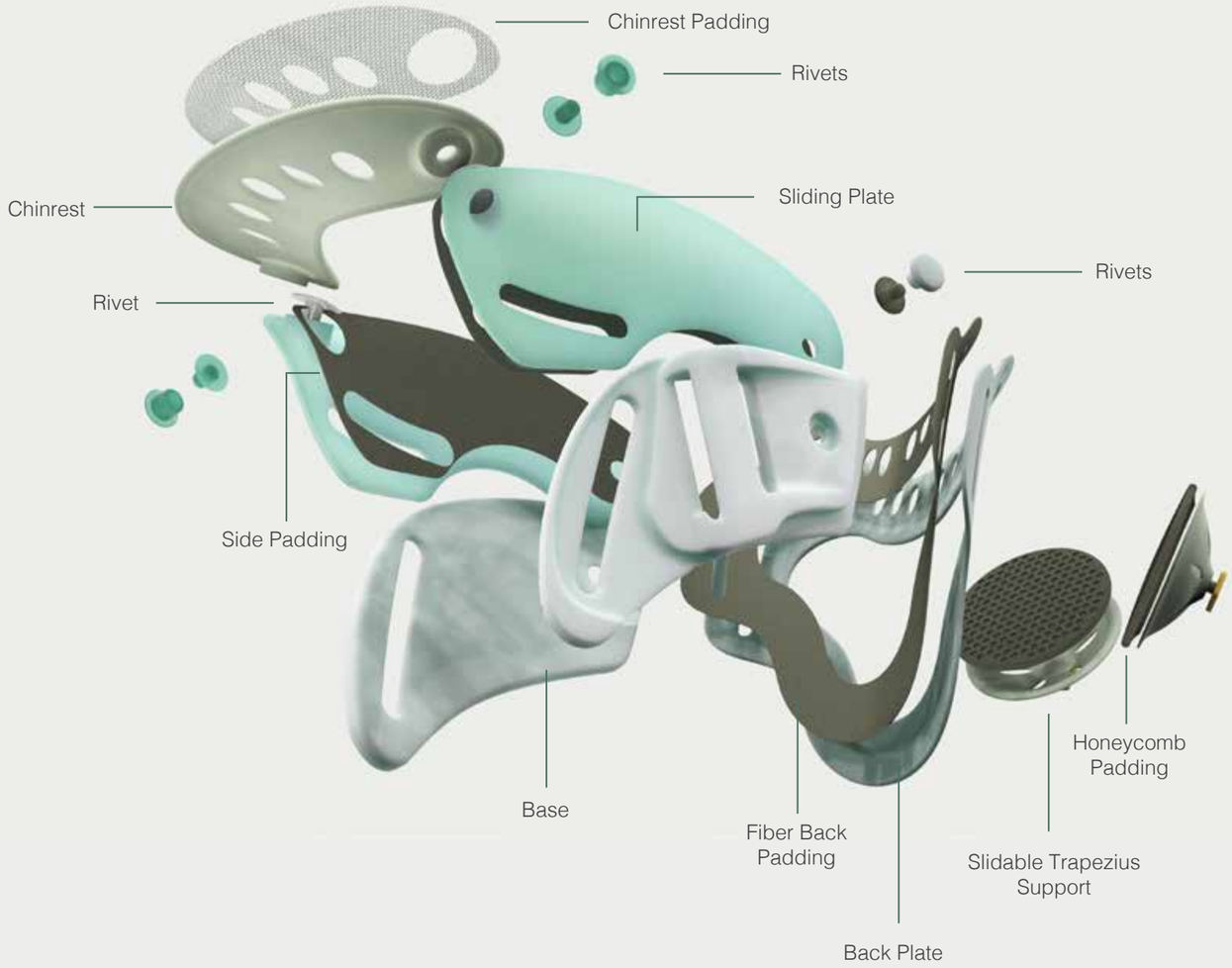
This hands-on fabrication and assembly process proved that a modular, compact form factor could still deliver uncompromising cervical support.

Compact for carrying



Supportive at All Angles

Modular, replaceable paddings carefully selected for key pressure points

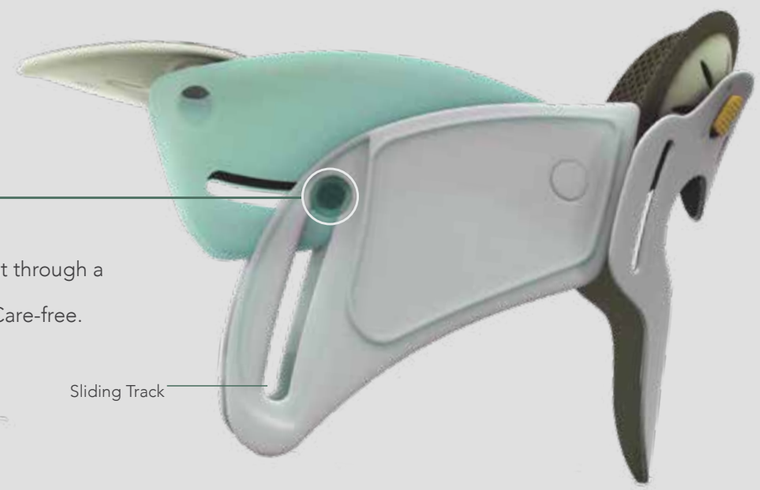


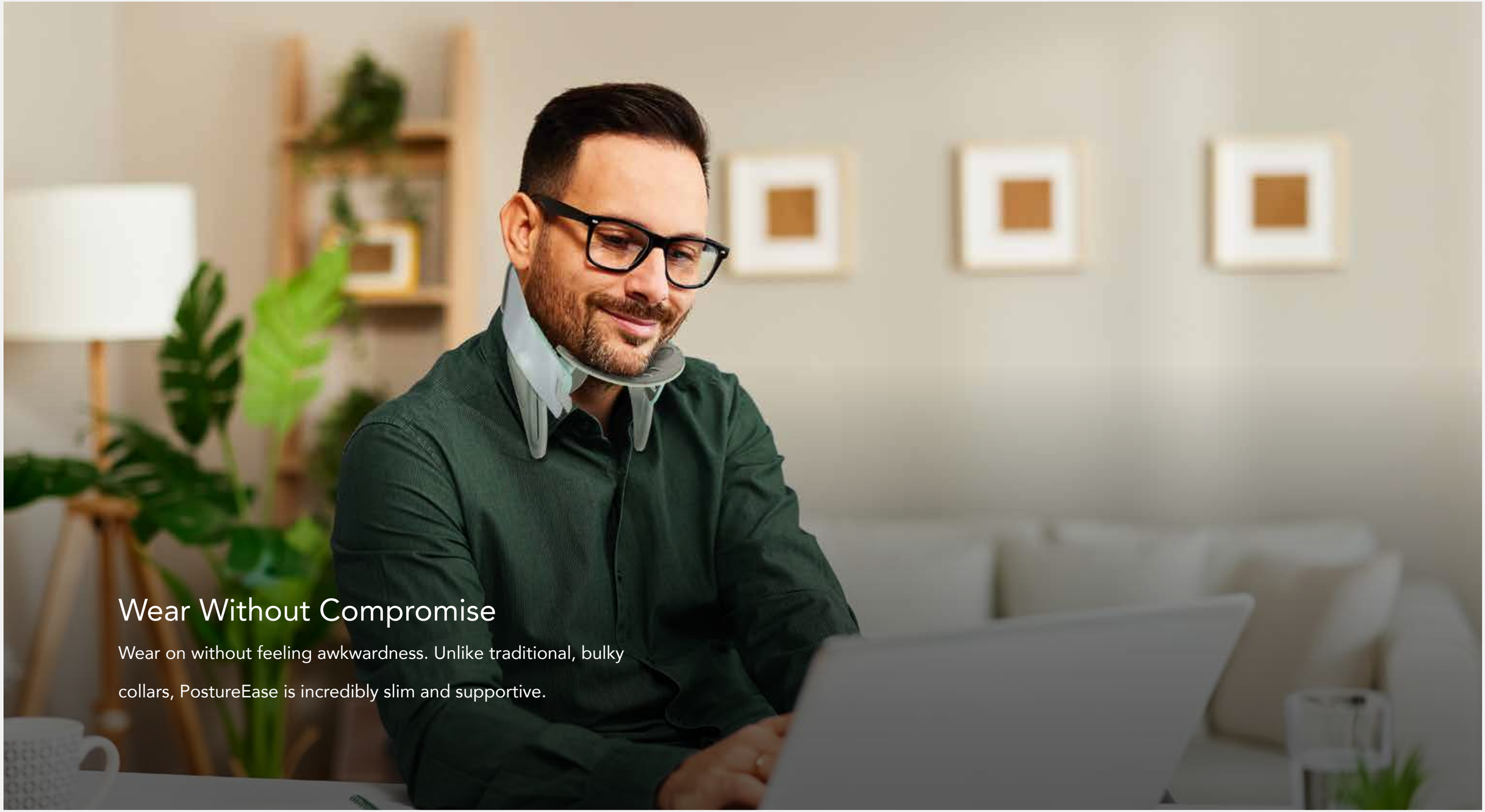
Ultimate Portability

Orgami-inspired. PostureEase folds up for ease of carrying where-ever you go.

Height Adjustable

Adapts to the user's neck height through a sliding mechanism. Wear on / Care-free.





Wear Without Compromise

Wear on without feeling awkwardness. Unlike traditional, bulky collars, PostureEase is incredibly slim and supportive.

Thank You